

The above measurements and description were taken from a fresh specimen.

The molar pattern is as follows:—

Upper	I.	5 spaces,	3 external and	3 internal angles.
"	II.	4 "	3 "	2 " "
"	III.	3 "	3 "	3 " "
Lower	I.	7 "	4 "	4 " "
"	II.	5 "	3 "	3 " "
"	III.	3 "	3 "	3 " "

*Hab.* Gilgit, Kashmir.

This vole, which I have named after Mr. W. T. Blanford, has the molar teeth somewhat like those of *Arvicola Roylei*; the differences in this respect could only be made intelligible with the aid of figures. The colour and proportions, however, of *A. Roylei* and *A. Blanfordi* are widely different. The Gilgit vole is quite distinct from the lately described *A. Stracheyi*.

#### BIBLIOGRAPHICAL NOTICE.

*Memoirs of the Geological Survey of India.—Palæontologia Indica, &c. Tertiary and Upper Cretaceous Fauna of Western India.* Ser. XIV. Vol. I. 1. *Sind fossil Corals and Alcyonaria.* By P. M. DUNCAN, M.B. (Lond.), F.R.S., V.P.G.S. 4to. Calcutta, Geological Survey Office; and London, Trübner: 1880.

THE authorities of the Geological Survey of India have worthily opened a new series of their valuable 'Palæontologia Indica' with an excellent description by Prof. Duncan of the remains of Corals and Alcyonarians from the Upper Cretaceous and Tertiary rocks of Sind. Altogether Dr. Duncan describes and figures 136 species of true corals, the majority of which are pedunculated forms with a well-developed epitheca, and by their characters and relationships indicate the existence of a shallow sea in which the deposits containing them were accumulated. This applies even to the corals from the Upper Cretaceous formation, in which no production of reefs or of coral limestone can be traced; and it is not until we come to the uppermost coralliferous series that we meet with massive corals forming reefs and producing a sort of saccharoid limestone.

Dr. Duncan's researches fully confirm the most recent stratigraphical results arrived at by the Indian Geological Surveyors. The olive shales immediately underlying the Deccan trap have been regarded as Cretaceous, although it must be confessed that the palæontological evidence available for the determination of their stratigraphical position is not the most satisfactory in the world. The principal fossil, *Cardita Beaumonti*, is indeed nearly allied to European Neocomian and Gault species; and one *Nautilus* is said to be

undistinguishable from the European *N. Bouchar dianus* ; but for the rest the species might almost as well be Tertiary as Cretaceous. The same statement will apply to the corals, nine species of which are described, Dr. Duncan stating that their facies is rather Eocene than Cretaceous. There are, however, three species of *Caryophyllia*, a genus which is numerously represented in the Lower Cretaceous beds of Southern India ; but the species are all distinct. On the whole it would appear that these olive shales must be reckoned as belonging to the Cretaceous series by their stratigraphical position, whilst their fossils would indicate a state of transition towards the succeeding Tertiary conditions.

With the next series, the Ranikot group, there is no longer any doubt. Out of 50 species, many of them of great beauty, here described, 7 are identified with forms occurring in South-European Eocene deposits, whilst 5 others find near allies in the same beds ; and the whole series is referred by the author to the Nummulitic formation. Of the 16 species obtained from the overlying Khirthar group, 3 are identical with, and 3 closely allied to, European Nummulitic forms ; these are regarded by Dr. Duncan as Upper Nummulitic. The Oligocene is represented by the Nari beds, in which 5 out of 20 species are identical with European Nummulitic and Oligocene forms ; whilst the Gáj series, with 41 species, forming the highest member of the Tertiary group, is regarded as Miocene, from the recent facies of the corals, and the absence from among them of any actually existing species. It is curious that among these many of the species represent West-Indian forms, and also that here alone, as already stated, modified reef conditions appear to have prevailed. It is also remarkable that these successive faunas are exceedingly distinct, scarcely any of the species extending through more than one series.

The Alcyonaria described, which are not numerous, are all from the Gáj, or highest group. Their remains consist exclusively of the calcareous joints of the polypidem of several species of the genus *Isis*, one of them a species apparently of gigantic size, which Dr. Duncan names in honour of Prof. Dana.

We have done little more than indicate the general nature of the contents of this excellent treatise, which we believe is the first of a series to be carried out (in part, at least) by the same hand. The great interest attaching to these Sind fossils arises from the circumstance that we have evidently in that country a series of rocks representing conditions more or less intermediate between those under which the deposits that we usually appeal to in our classifications were laid down, and therefore here, as in the Western Territories of North America, we may expect to find the materials for hitherto unwritten chapters in geological history. We can only wish that all the materials obtained may be as carefully and conscientiously worked out as these Sind corals have been by Prof. Duncan.

Before taking leave of the book, we may, however, say a few words about the plates, 28 in number, with which it is illustrated. These

have been executed, under the author's superintendence, by Mr. De Wilde and Mr. A. S. Foord; and those artists have worked with a zeal and care which really leave little to be desired. With scarcely an exception the figures are most satisfactory; and we are glad to see that Mr. Foord has succeeded in rivalling the veteran coralliographer with whose work his own is here brought into competition.

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### MISCELLANEOUS.

*On some Facts in regard to the first Phenomena of the Development of the Osseous Fishes.* By M. L. F. HENNEGUY.

THE formation of the blastodermic leaves in the osseous fishes is still but little known. In the trout, Cellacher makes the mesoderm and endoderm originate from the deeper layer of the germinal disk by simple differentiation of cells. According to Kupffer, Van Bambeke, His, and Klein the mesoderm alone results from the differentiation of the deeper layer of the germ, and the endoderm is formed by the cells which originate in the *subblastodermic layer* of Lereboullet, or the *parablast* of Klein. Lastly, Götte supposes that the blastoderm folds under at the margins to form a layer of cells, which afterwards subdivides into mesoderm and endoderm.

My own observations in part confirm those of Götte. Sections effected in germs of trout of from seven to ten days, hardened by osmic acid, have in fact shown me very distinctly the reflection of the blastoderm at its margins. The germ at this epoch is spread out upon the vitellus in the form of a lamina with thickened contours, the thinner centre of which conceals a cavity, the germinal cavity. The external surface of the germ is constituted by a layer formed by a single series of cylindrical cells. This layer appears very early, long before the germ begins to spread over the vitellus; Cellacher has given it the name of the *corneous lamina*. Beneath this lamina there is a pluricellular layer, presenting at first the same thickness throughout; this is the *sensorial layer*. This layer soon becomes inflected at the periphery of the disk, towards the vitellus, and penetrates into the germinal cavity; the corneous lamina takes no part in this inflexion, and stops suddenly at the surface of the vitellus. In sections made across a germ arrived at this stage of development, we see a linear fissure separate the sensorial layer from the reflected portion of the blastoderm and stop at a certain distance from the rounded margin of the germ.

In germs hardened by chromic acid the fissure is not visible; in its place one only observes a line separating the two layers of the blastoderm, but stopping at a certain distance from its free margin. This fact explains the opinion of Cellacher, who, having hardened all his trout-ova in chromic acid, assumes only a simple differentiation of cells for the mesoderm.